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Building & Highway Material Testing Laboratory
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JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/MR/W.No.10/WMM/Gradation/2019-20 08.04.2019

TEST REPORT ON GRADATION OF WET MIX MACADAM

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan.R,** #830, IEHCS layout, Left side, BEL Layout, Vidyaranyapura, Bangalore - 5600 97.
* Name of Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/207/2018-19 Dated: 31.03.2019
Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386 (part-1)1963 (RA-2011)
Date of Testing	:	08.04.2019

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits As per Morth Table 400-13
53	0	0	0	100	100
45	120	120	2.4	97.6	95-100
22.4	1530	1650	33.00	67.00	60-80
11.2	1150	2800	56.00	44.00	40-60
4.75	585	3385	67.70	32.30	25-40
2.36	625	4010	80.20	19.80	15-30
0.600	425	4435	88.70	11.30	8-22
0.075	385	4820	96.40	3.60	0-8

*Information is furnished by the Customer/Representative.

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Note:

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Job No.: CTCE/BBMP/MR/W.No.10/WMM/AIV/2019-20 08.04.2019

TEST REPORT ON IMPACT VALUE OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan.R,** #830, IEHCS layout, Left side, BEL Layout, Vidyaranyapura, Bangalore - 5600 97.
* Name of Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/207/2018-19 Dated: 31.03.2019
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS : 2386(Part -4)-1963 (RA-2011)
Date of Testing	:	08.04.2019

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	392	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	89	90	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	302	
4	Aggregate Impact value = percent fines 100* (W2/W1)%	22.88	22.96	22.92

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/MR/W.No.10/WMM/Shape.T/2019-20

08.04.2019

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan.R,** #830, IEHCS layout, Left side, BEL Layout, Vidyaranyapura, Bangalore - 5600 97.
* Name of Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/207/2018-19 Dated: 31.03.2019
* Sample ID	:	Wet Mix Macadam
Technical Reference	:	IS 2386(Part 1) 1963 (RA 2011)
Date of Testing	:	08.04.2019

Sl.No.	Description	Result
1	Flakiness Index	12.32%
2	Elongation Index	13.60%
3	Combined Flakiness & Elongation Index	25.92%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No: CTCE/BBMP/MR/W.No.10/BC/Bitumen/2019-20 26.04.2019

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE
As per IS2386 and IRC:SP:11-1984

* Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	**Mr. Madhusudan.R,** #830, IEHCS layout, Left side, BEL Layout, Vidyaranyapura, Bangalore - 5600 97.
* Name of Work	Filling of pot holes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	BBMP/EE/BTP/WO/207/2018-19 Dated: 31.03.2019
* Sample ID	Filling of pot holes in Ward No.10
DATE OF TESTING	26.04.2019

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	470	469
3. Weight of Asphalt and Mineral matter Extracted, g	30	31
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	30	31
7. Bitumen content in %	6.00	6.20
8. Average	6.10	

GRADATION AFTER EXTRACTION

TABLE - 1

SIEVE SIZE	Percent Passing, %		JOBMIX
mm	Sample 1	Sample 2	Gradation
19	100.00	100.00	100
13.2	86.65	88.35	79-100
9.5	80.12	79.25	70-88
4.75	58.56	63.25	53-71
2.36	45.85	46.32	42-58
1.18	39.25	42.35	34-48
0.6	28.50	29.60	26-38
0.3	23.35	22.55	18-28
0.15	15.85	16.63	12-20
0.075	5.65	6.35	4-10

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/MR/W.No.10/BC/AIV/2019-20 24.04.2019

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan.R,** #830, IEHCS layout, Left side, BEL Layout, Vidyaranyapura, Bangalore - 5600 97.
* Name of sub Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/207/2018-19 Dated: 31.03.2019
* Sample ID	:	Hot mix plant, Bangalore.
* Type of Mix	:	Bituminous Concrete
Technical Reference	:	IS: 2386 (Part- 4)-1963 (RA-2011)
Date of Testing	:	24.04.2019

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	390	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	305	305	
4	Aggregate Impact value = percent fines 100* (W2/W1) percent	21.59	21.79	**21.69**

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Job No.: CTCE/BBMP/MR/W.No.10/BC/Shape.T/2019-20

24.04.2019

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan.R,** #830, IEHCS layout, Left side, BEL Layout, Vidyaranyapura, Bangalore - 5600 97.
* Name of sub Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/207/2018-19 Dated: 31.03.2019
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	24.04.2019

Sl.No.	Description	Result
1	Flakiness Index	12.15%
2	Elongation Index	13.60%
3	Combined Flakiness & Elongation Index	25.75%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/MR/W.No.10/BC/Stripping/2019-20 24.04.2019

TEST REPORT ON STRIPPING VALUEOF ROAD AGGREGATES (STATIC IMMERSION TEST)

*** Customer**	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
*** Agency**	:	**Mr. Madhusudan.R,** #830, IEHCS layout, Left side, BEL Layout, Vidyaranyapura, Bangalore- 560097.
*** Name of sub Work**	:	Filling of pot holes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
*** Reference**	:	BBMP/EE/BTP/WO/207/2018-19 Dated: 31.03.2019
Technical Reference	:	IS: 6241
*** Type of Mix**	:	Bituminous Concrete
Date of Testing	:	24.04.2019

Type of binder : VG 30
Percentage of binder used : 5.00% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.00 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.3		
3	3.2		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/MR/W.No.10/BC/Sp_Wa/2019-20

24.04.2019

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
* Agency	:	**Mr. Madhusudan.R,** #830, IEHCS layout, Left side, BEL Layout, Vidyaranyapura, Bangalore - 5600 97.
* Name of sub Work	:	Filling of pot holes in Ward No.10 (Doddabommasandra), Vidyaranyapura Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/BTP/WO/207/2018-19 Dated: 31.03.2019
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	24.04.2019

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2012	2010	2011	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1239	1238	1256	
4	Weight of saturated surface dry aggregate in air	W_3 g	2011	2014	2015	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	772	776	759	
6	Weight of oven dried aggregate	W_4 g	2000	2001	2002	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.591	2.579	2.638	2.602
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.628	2.623	2.684	2.645
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.55%	0.65%	0.65%	0.62%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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